



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/665,494	09/22/2003	Masanori Kawasumi	242842US2	6870
22850	7590	03/10/2005	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			LEE, SUSAN SHUK YIN	
			ART UNIT	PAPER NUMBER
			2852	

DATE MAILED: 03/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/665,494

Applicant(s)

KAWASUMI ET AL.

Examiner

Susan S. Lee

Art Unit

2852

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-20 is/are allowed.
- 6) ☒ Claim(s) 21, 22, 24-30, 32, 33 and 35-37 is/are rejected.
- 7) ☒ Claim(s) 7-9, 17, 23, 31, 34 and 38 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 9/22/03 & 2/17/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☒ Other: See Continuation Sheet.

Continuation of Attachment(s) 6). Other: consideration of papers filed 5/14/04, 2/17/04 (2 sheets), 7/9/04, 7/27/04, 8/2/04, 9/2/04, 9/21/04, 10/20/04 (2 sheets), 11/19/04, and 12/2/04.

DETAILED ACTION

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Objections

Claims 7-9, 17, 26-28, and 37 are objected to because of the following informalities:

As to claim 7, line 1, "the charging device" lacks antecedent basis.

As to claim 17, line 1, "the at least one toner container" lacks antecedent basis.

As to claim 26, line 1, "the charging device" lacks antecedent basis.

As to claim 37, line 1, "method of claim 36" is incorrect. There are no method steps in claim 36.

Appropriate correction is required.

Claim 38 is objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim should refer to other claims in the alternative only. See MPEP § 608.01(n). Accordingly, the claim 38 has not been further treated on the merits.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 21 and 32 are rejected under 35 U.S.C. 102(b) as being anticipated by Maekawa et al. (4,660,962).

Maekawa et al. discloses a rotating image carrier 1 with an image carrier surface, a brush roller 8 in contact with the image carrier 1, a charging member 2 in proximity to the image carrier surface for charging the image carrier 1's surface, and a casing 6 including a sponge member 15 that reads on the instant invention's "miler" and is in contact with the image carrier 1 surface and arranged (note Fig. 1) the brush roller 8 from the charging member 2. The brush roller 8 has bundles of conductive brush furs 10 that are a density of between 150,000 yarns/inch² to 222,000 yarns/inch². Note column 2, lines 32-67. As shown in Fig. 1, the brush roller and the rotating image carrier rotates in opposite directions. The remaining positive toner on image carrier 1 after transfer is attracted to the fur brush of brush roller 8 by applying a first bias voltage of about -600 V. Note column 3, lines 31-41.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 22, 24, 25, 29, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maekawa et al. (4,660,962) in view of Ikegawa (5,124,757).

Maekawa et al., as discussed above, differs from the instant invention by not disclosing a positive brush charger, a negative brush charger, a controllable switch

connecting the positive and negative brush chargers to the brush roller; and a developing device.

Ikegawa discloses a cleaning device 8 for an image forming apparatus with a power source 91 or a power source 92 connected to the cleaning roller 81. Both power sources 91 and 92 are controlled by power source switcher 95 so that power source 91 is used for attracting toner and power source 92 is used for returning toner. The polarity used by switcher 95 to connect the power source 91 for attracting residual toner away from the photosensitive drum 1 after transferring the visible toner image to a paper sheet S is the polarity opposite of the residual toner after transfer. The toner then is attracted to cleaning roller 81. The return of the toner back to the photosensitive drum 1 would cause switcher 95 to connect the power source 92 so that the polarity applied to the toner on the cleaning roller 81 will be opposite of the polarity applied through power source 91. The toner attracted to cleaning roller 81 then falls back to the photosensitive drum 1 and then eventually moves toward a developing sleeve 51 of developing device 5. A power source 50 is connected to the developing sleeve 51. The developing device 5 also reads on the instant invention's "toner container" (claim 22). Note column 3, line 25 – column 4, line 57.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Maekawa et al. with that of Ikegawa so that residual toners can be reused and the sizes of parts in the image forming apparatus can be reduced as disclosed by Ikegawa (note column 1, line 57 – column 2, line 4).

Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Maekawa et al. (4,660,962) in view of Kikui (5,606,399).

Maekawa et al., as discussed above, differs from the instant invention by not disclosing the charging member is a charging roller.

Kikui discloses it is well known in the art to use chargers in the image forming apparatus such as a corona discharge system or a contact-to charge type such as a charging roller. The charging roller has the advantage that the amount of ozone to be produced is radically reduced. Note column 1, line 55 – column 2, line 3.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Maekawa et al. with that of Kikui so that ozone produced by the charger would be reduced.

Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Maekawa et al. (4,660,962), as modified by Kikui (5,606,399), as applied to claim 26 above, and further in view of Nimura et al. (5,233,398).

Maekawa et al., as modified by Kikui, differ from the instant invention by not disclosing a cleaning brush roller in contact with at least one of the image carrier surface and the charging roller; and a scraper in contact with the cleaning brush roller.

Nimura et al. discloses a cleaning device 3 with a plurality of rotatable fur brushes 4a, 4b arranged to contact and clean photoreceptor drum 110 with surface 1. The brushes 4a, 4b each have a recovering roller 5a, 5b. These rollers read on the instant invention's scraper. Note column 3, lines 16-65.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Maekawa et al., as modified by Kikui, with that of Nimura et al. so that further cleaning of residual toner from the surface of an image carrier can be obtained.

Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Maekawa et al. (4,660,962), as modified by Kikui (5,606,399), as applied to claim 26 above, and further in view of Sato et al. (2001/0017995).

Maekawa et al., as modified by Kikui, differ from the instant invention by not disclosing a film wrapped around both ends of the charging roller.

Sato et al. discloses using a charging roller 14 having a metal core 16, an elastic member 17 and film members 18 wrapped around each end of the elastic member 17. Note column 5, paragraphs [0082], and [0083] and Fig. 1. A gap is created between the charging roller 14 and drum 5 as shown in Fig. 1. This gap does allow the contact between the image carrier and charging roller so that deterioration of charging performances can be prevented (note column 1, paragraph [0010]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Maekawa et al., as modified by Kikui, with that of Sato et al. so that prevention of charging performances can be obtained as disclosed by Sato et al..

Claims 33 and 35-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyoshi et al. (2002/0028093) in view of Maekawa et al. (4,660,962).

Miyoshi et al. discloses an image forming apparatus with a rotating image carrier 1; a charger roller 203 that negatively charges the surface of the image carrier 1 (note column 4, paragraph [0062]); an optical writing unit 22 for exposing the surface of image carrier 1 with a latent image (note column 3, paragraph [0052]); a developing device 23 with developing sections 231, each containing cases 283; an intermediate transferring device 23 having a transfer belt 261 and a corona discharger 265 for transferring the color toner images onto the belt 261 and later transferred onto a sheet by corona discharger 263 (note Fig. 1; and column 4, paragraphs [0058] and [0059]); and a drum cleaner 201 (note column 5, paragraph [0068]). Case 283 accommodates a developing roller 284 that faces the image carrier 1. The developing roller 284 includes a sleeve 285 and a magnet roller 286. The magnet roller 286 forms a magnetic field for causing the developer deposited on the sleeve to rise in the form of a magnet brush (note column 1, paragraph [0005]; and column 5, paragraphs [0070-0073]).

Miyoshi et al. differs from the instant invention by not disclosing cleaning positively charged residual toner from the surface of the rotating image carrier with a brush roller charged with negative charge.

Maekawa et al. discloses a rotating image carrier 1 with an image carrier surface, a brush roller 8 in contact with the image carrier 1, a charging member 2 in proximity to the image carrier surface for charging the image carrier 1's surface, and a casing 6 including a sponge member 15 that reads on the instant invention's "miler" and is in contact with the image carrier 1 surface and arranged (note Fig. 1) the brush roller 8 from the charging member 2. The brush roller 8 has bundles of conductive brush furs

Art Unit: 2852

10 that are a density of between 150,000 yarns/inch² to 222,000 yarns/inch². Note column 2, lines 32-67. As shown in Fig. 1, the brush roller and the rotating image carrier rotates in opposite directions. The remaining positive toner on image carrier 1 after transfer is attracted to the fur brush of brush roller 8 by applying a first bias voltage of about -600 V. Note column 3, lines 31-41. As to claim 36, the collecting roll 11 (note column 4, lines 33-61) reads on the instant invention's "means for cleaning toner from the means for cleaning positively charged residual toner"; and the casing 6 (note column 2, lines 40-47) reads on the "means for collecting the toner cleaned from the means for cleaning positively charged residual toner".

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus and method of Miyoshi et al. with that of Maekawa et al. so that the image carrier can be further cleaned without any scattering of residual toner.

Allowable Subject Matter

Claims 1-20 are allowed over the prior art of record.


Claims 23, 31, and 34 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kimura et al. (Japan, 519), Ishihara et al. (Japan, 672), Shoji et al., Yano et al., and Otaki et al. disclose art in cleaning members in image forming apparatuses.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susan S. Lee whose telephone number is 571-272-2137. The examiner can normally be reached on Mon. - Fri., 10:30-8:00, Second Monday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Art Grimley can be reached on 571-272-2136 or 571-272-2800 (Ext. 52). The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Susan S. Lee
Primary Examiner
Art Unit 2852